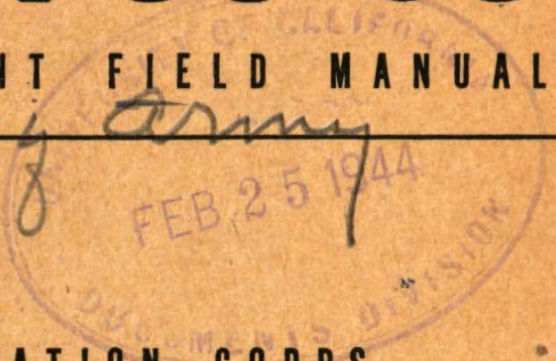


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AR DEPARTMENT FIELD MANUAL

U.S. Dept of Army



TRANSPORTATION CORPS

RAILWAY SHOP

BATTALION

AR DEPARTMENT • 25 JANUARY 1944

WAR DEPARTMENT FIELD MANUAL
FM 55-60

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TRANSPORTATION CORPS

RAILWAY SHOP

BATTALION



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G. C. MARSHALL,
Chief of Staff.

OFFICIAL:

J. A. ULIO,
*Major General,
The Adjutant General.*

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SECTION I

GENERAL

1. PURPOSE AND SCOPE.

a. This manual explains the organization and operation of the railway shop battalion for employment on a standard military railway. Its purpose is to assist railway shop battalion officers in the training and operation of their units, and to guide command and staff officers charged with the employment of railway shop battalions.

b. Since actual conditions which confront a railway shop battalion may vary widely, it is not intended that a literal interpretation of these provisions be made. They should be considered as a guide, and exceptions thereto should be made in the interest of efficient operation and greater utility.

c. The statement of duties is only for the purpose of showing the command relations between various individuals and command responsibility, and to explain Tables of Organization. Rules and regulations covering details of shop operations are not within the scope of this manual.

2. MISSION. The mission of a railway shop battalion is to—

a. Accomplish repairs to existing or U. S. Army standard equipment beyond the capacity of the railway operating battalion.

b. Stock and furnish to the railway operating battalions finished and semifinished parts as nearly prepared for application as consistent in order to eliminate delays and facilitate repairs by that battalion to the maximum possible degree.

c. Repair railway work equipment not permanently assigned to operating battalions which is in need of repairs beyond their capacity to accomplish.

d. Repair railway equipment assigned to the Coast Artillery Corps or other arms or services.

e. Repair equipment beyond the capacity of other repair organizations, as may be directed by higher authority.

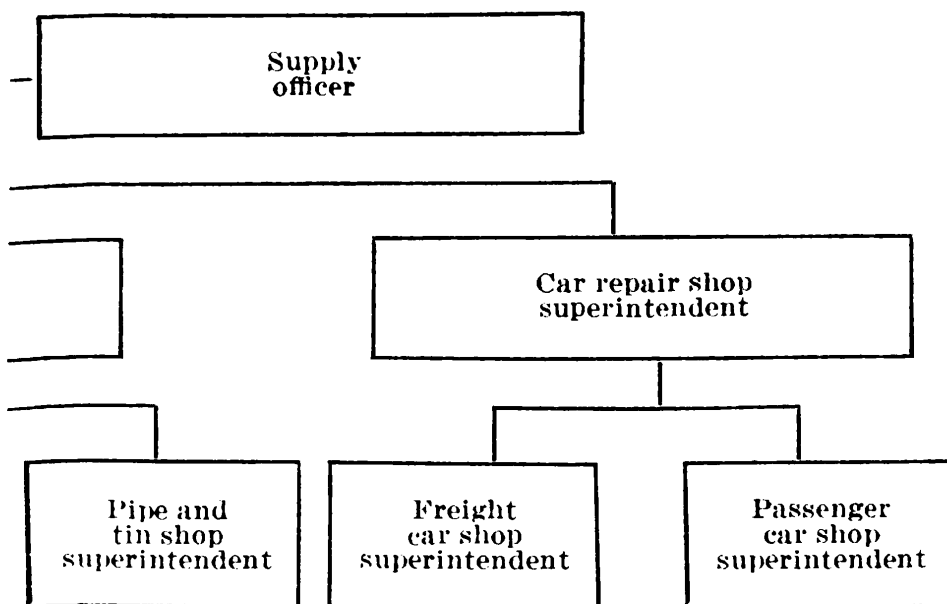
3. ORGANIZATION.

a. The railway shop battalion is organized to form a balanced unit for the repair of railway equipment. Each battalion includes the personnel necessary to operate a shop and equipment for the erection and repair of railway locomotives, cars, work equipment, etc. It is the basic unit for railway shop operations and may be expanded for the operation of shops beyond the capacity of the original organization. The type of railway equipment in use and the actual operations performed by the battalion may require modifications of the organizations shown.

b. The personnel for purposes of organization, administration, and control is grouped into a headquarters, headquarters company, erecting and machine shop company, boiler and smith shop company, and car repair company. (For details of organization, see T/O 55-235 through 55-239 and 55-500.)

4. EQUIPMENT.

a. Regular. Items of equipment issued to the railway shop battalion are published in Tables of Equipment. This equipment is issued on mobilization for the military administration and training of the unit.



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b. Special.

- (1) The special equipment of the railway shop battalion consists of the tools and facilities of a railway repair shop, and includes repair and manufacturing equipment which it is impracticable to install in railway operating battalion shops. A railway shop battalion may be required to operate an existing shop and issued such additional equipment as may be required, or it may be required to install new equipment and develop necessary facilities. Such equipment will be issued to the battalion in the theater of operations. Fixed equipment requiring extensive construction work, such as drop tables for removing wheels and trucks, and overhead cranes and mono-rails, is desirable for locomotive work and will be furnished when required. Car portable hoists are preferable for removing wheels and trucks, and industrial tractors, trucks, and portable cranes are preferable to overhead or fixed cranes. Emphasis is laid on flexibility, ease of expansion, and elimination of special construction work.
- (2) Headquarters and headquarters company equipment includes—
 - (a) *Administrative.* Office, drafting and reproduction, and library.
 - (b) *Supply.* Office and material-handling equipment.
 - (c) *Plant maintenance.* Generator sets, switchboards and distribution apparatus; office equipment; carpenters', masons', pipe-fitting, and plumbing tools; millwrights' tools; and fire-extinguishing equipment. The power requirement may be estimated from the number of locomotive repairs completed. Approximate requirements per locomotive repair job, completed monthly, are as follows:
 1. Electricity: 25-kilowatt generator capacity, exclusive of air compressors.

2. Compressed air: 125 cubic feet per minute capacity.

3. Steam: 8 horsepower for pumps, steam hammer, and miscellaneous service lines, exclusive of electric power, compressed air, and building heat. Steam requirements for heating will vary with building design and climatic conditions.

(d) *Reclamation*. Office equipment; mechanics' tools, material-handling equipment.

(3) Erecting and machine shop company equipment includes—

(a) *Headquarters*. Office and material-handling equipment.

(b) *Erecting shop*. Mechanics' tools, grinders, portable lathe, upright and sensitive drills, jacks, and material-handling equipment.

(c) *Machine shop*. Portable pneumatic tools, boring bars, and crankpin turners; radial upright, and sensitive drills; wheel lathe; cylindrical, combination, dry, wet, radial surface, swing, tool, and universal grinders; buffers; horizontal and vertical boring mills; universal millers; planers; shapers; bolt-threading machinery; arbor and hydraulic vertical and wheel presses; air-brake test rack, air-pump cylinder grinder, valve grinder, and other air-brake repair equipment; equipment for repair of injectors, and other specialties.

(d) *Work equipment platoon*. Office equipment, mechanics' tools, automotive tools and equipment, jacks, boilermakers' tools and boilermaker test apparatus, drills, grinders, and material-handling equipment.

(4) Boiler and smith shop company equipment includes—

(a) *Headquarters*. Office and material-handling equipment.

(b) *Boiler shop.* Boilermakers' tools; pneumatic flanging press, flanging clamps and blocks, bending rolls; punches and shears; upright drills; rivet heaters; pneumatic riveters; grinders; tube furnace, cutters, swaging and expanding machinery, gauges and apparatus for repair of superheater units; tube test rack and pump, boiler test apparatus; gas- and electric-welding equipment; jacks and material-handling equipment.

(c) *Smith shop.* Blacksmith tools, anvils, forges, blowers, power and steam hammers; bar shears; heat-treating and tool furnaces; pipe-fitting tools; pipe-bending and threading machinery; sheet metal machinery; melting furnace, core, oven, flasks, and molding equipment; babbitting and brazing furnaces; arbor press, brazing and soldering equipment.

(5) Car shop equipment includes—

(a) *Headquarters.* Office and material-handling equipment.

(b) *Car repair.* Mechanics' tools; jacks, shop trucks, and material-handling equipment; pipe-fitting tools.

(c) *Passenger equipment.* Wood planer; band saw; circular cut-off and variety saws; pattern makers' lathe; carpenters' and cabinetmakers' tools; sewing machines and canvas-working equipment; mechanics' tools; jacks and material-handling equipment; brush and spray-painting equipment; car-wheel borer; sensitive and upright drills; grinders.

c. Weapons. For their own protection and for guard, personnel of the battalion are armed with the pistol or revolver.

d. Transportation.

(1) The railway shop battalion is not mobile and no provision is made for transportation other than that necessary for supplying the unit during mobilization,

for distribution of supplies within the unit, and for contact with higher authority and other units. Movement of a railway shop battalion requiring transfer of equipment is made by rail.

- (2) Tables of Organization show the authorized allowance of motor transport.
- (3) The railway shop battalion is not provided with riding horses or animal-drawn transportation.

5. MILITARY EMPLOYMENT.

a. The general organization of a military railway system as applied to an extensive theater of operations will be described in FM 55-50 (when published). The basic unit is the railway operating battalion (see FM 55-55 when published), which operates and maintains one railway division. When two or more operating battalions are required, they are grouped geographically into railway grand divisions, each normally controlling two to six operating battalions. When grand divisions are operated as part of a system, they are controlled by the manager, military railway service, who is under the chief of transportation on the staff of the commanding general, communications zone.

b. A railway shop battalion is assigned to a railway grand division when the grand division is operated independently. When grand divisions are operated as part of a railway system, a shop battalion may be assigned to a grand division, or may be retained under the direct control of the manager, military railway service. When conditions are such as to permit uniform operation and permanent assignment of power and other equipment to a grand division, as in civil practice, assignment of a shop battalion to a grand division is desirable to keep responsibility for the repair of its equipment within the grand division. Necessity for greater flexibility in operation and frequent transfer of

equipment from one grand division to another, to combat the ever prevalent shortage, normally make it more desirable to retain railway shop battalions under the control of the manager, military railway service.

c. The number of railway shop battalions is determined by conditions of equipment, whether it is United States standard military or available civil equipment, severity of the service, and shop facilities available. Work capacity of the battalion (see par. 9) is approximately sufficient to accomplish its mission for each 100,000 troops in the field. Expansion of work capacity of the battalion is effected by increasing personnel (as circumstances require) up to approximately double the capacity provided by present Tables of Organization (see T/O 55-235). Beyond that capacity, additional battalions will be needed. If large shop facilities are available, a regimental organization will be established.

6. RELATION TO OTHER ARMS AND SERVICES.

The railway shop battalion is organized and equipped primarily for repair of standard military railway equipment operated by the military railway service. Its use for other purposes reduces railway operating efficiency by increasing the quantity of bad equipment. The railway shop battalion has capacity to repair heavier equipment than any other repair unit, and the repair of such equipment as outlined in paragraph 2 will therefore devolve upon it. Operations other than those regularly assigned to the battalion are arranged for with the manager, military railway service, or with the general superintendent of a grand division in the case of an independent grand division, through the chief of transportation, communications zone. The commander of a railway shop battalion will, however, cooperate with other organizations to effect the dispatch of emergency repairs.

7. COMBAT. Railway shop battalions are not intended for use in combat. Personnel are nearly all specialists, highly skilled in their respective trades. Shop battalions are located as far as practicable from combat areas to avoid interference with their operations. Enemy interference may occur by aerial bombardment and, when this is expected, the area should be protected by troops and weapons from the arms.

SECTION II

TECHNICAL OPERATIONS

8. INITIAL. Extensive repairs to existing railway equipment in the theater of operations are not contemplated, but probably will have to be accomplished until sufficient standard military equipment can be put in service to relieve existing equipment. Initial operations, therefore, involve both heavy repairs to existing equipment and the assembly and placing in operation of such standard military equipment as may from time to time be provided.

9. ROUTINE.

a. Routine operations of the railway shop battalion include classified repairs to existing or standard military railway motive power; heavy repairs to existing or standard military railway cars, repair of subassemblies; and manufacture of parts for railway operating battalions.

(1) Classified repairs to locomotives are defined as those which add definite periods to the life of equipment, as distinguished from running repairs which include only that work necessary to keep equipment in operating condition. The five classes of repairs to steam locomotives are:

(a) *Class 1.* Rebuilding locomotives, including complete new boiler or new back end, new flues and tubes, general repairs to machinery and tender including tires turned or changed, journals turned, driving boxes and rods overhauled, and all bearings refitted.

(b) *Class 2.* New firebox, or one or more boiler shell courses or roof sheets, new flues and tubes, and general repairs to machinery and tender.

(c) *Class 3.* Repairs to firebox and boiler, new tubes, and general repairs to machinery and tender. Class 3 repairs are normally required after 4 or 5 years' service.

(d) *Class 4.* Light repairs to firebox and boiler, part or full set of tubes, and necessary repairs to machinery and tender, including returning tires and refitting driving axle bearings. Class 4 repairs are normally required after 2 years' service.

(e) *Class 5.* Necessary repairs to boiler and tender, including returning tires and refitting driving axle bearings. Class 5 repairs are normally required after 1 year's service. Class 1 and 2 repairs should not be attempted ordinarily in the theater of operations. Class 3, 4, and 5 repairs normally are undertaken by railway shop battalions. The battalion has a capacity to complete about one-half classified locomotive repairs daily, in addition to fulfilling requirements to other equipment, machining and assembly of subassemblies and finished and semifinished material.

(2) Heavy car repairs are less clearly defined as those involving over 40 man-hours of work per car; actually, heavy car repairs usually involve repairing and rebuilding cars, replacing all worn parts with new or rehabilitated parts for a definite extension of life. Capacity of the battalion for standard railway car repairs varies with the type and age of such equipment. The battalion should be able to repair from 4 to 16 freight cars daily, the smaller figure being for the heavier repairs.

(3) Repair of subassemblies normally includes all air-brake operating equipment, feed water pumps and injectors, generators, gauges, cocks and valves, springs,

etc. Such repairs are preferably accomplished by the shop battalion which is provided with special repair and test facilities and is better organized for production work than railway operating battalions. Complete spare assemblies are furnished to operating battalions to replace defective assemblies.

- (4) Parts manufactured by the railway shop battalion normally include replacement parts not available from depots and finished or semifinished material which is deemed advisable to furnish to operating battalions as nearly ready for application as conditions permit. The latter parts include pistons and cross heads, motion work parts, main and side rods, rod bushings, driving tires, boxes, bolts, springs, brake rigging pins, wheels (including engine truck trailer, tender car) air-brake materials, injectors, water pumps, headlight generators, batteries, flues, arch tubes, safety appliances, standard steel patches, bolsters, side frames, draft and draw gear parts, and many other similar items.

b. Repair of railway equipment is required as the result of normal wear, accident, or neglect.

- (1) **NORMAL.** Normal wear is the cause of most repair operations and should be corrected before failures occur, equipment being routed to the shop while still performing useful work. Observance of this principle is much more important in connection with railway equipment than with highway transport equipment. Failure of highway transport equipment in service affects only the failed equipment and its load, whereas failure of railway equipment delays the train transporting several hundred tons of supplies, blocks traffic on the entire line, and requires additional train movements to deadhead

the damaged equipment to the shop. Assignment of motive power for repair is accomplished in civil practice on a mileage basis, an accurate record of each locomotive being maintained. Accurate mileage records may not be available in military railway operations, but proper use of inspection reports provides an accurate determination for the need of classified repairs. Cars needing heavy repairs are usually routed to the shops either with restricted loads or empty. A preferred practice is to route groups of cars of one age and design to the shops, thus permitting establishment of a production line and more economical shop operations. This method maintains cars in much better condition than by sending individual cars to the shop when required by excessive wear or failure.

- (2) **ACCIDENTS.** Repair because of accidents should be considered in respect to availability of new equipment. Man power and material required to place a piece of new equipment in the theater of operations normally are much less than required for maintenance of complete stocks of spare parts and rebuilding that equipment in the theater of operations. In the case of badly damaged equipment, it normally is preferable to strip it for spare parts rather than to rebuild it. It can be expected that 4 cars per 10,000 cars in service will be damaged daily in accidents.
- (3) **NEGLECT.** Repair because of neglect may be confined to replacement of wearing parts or may involve extensive damage to parts not readily replaced, such as damage to boilers caused by low or bad water and neglect of boiler wash-outs. In case of extensive damage, procedure governing repair because of accidents will be followed. Inspection reports will

place responsibility for neglect, and severe disciplinary measures will be used to combat it.

10. MINOR. Minor operations are repair to cranes, maintenance-of-way machinery, rail cars, and miscellaneous railway equipment, railway equipment issued to other arms and services, salvage of railway materials, and miscellaneous work assigned to the battalion. Miscellaneous equipment assigned to the battalion for repair requires many operations not conducive to a smooth-running shop and such operations will be kept apart from routine operations of the battalion as much as possible.

SECTION III

HEADQUARTERS AND HEAD- QUARTERS COMPANY

11. ORGANIZATION (fig. 2).

a. Battalion headquarters consists of the battalion commander and his staff.

b. Headquarters company consists of company headquarters and six sections; administration, shop superintendent, plant maintenance, electrical, supply and transportation, and stores (see T/O 55-236).

12. FUNCTION. The function of the headquarters and headquarters company is to provide in one organization technical, administrative, and supply personnel necessary to enable the battalion commander to supervise activities of the battalion and to operate certain activities common to all companies. Primary duties of the headquarters company are to provide—

a. Military administration of the company and battalion.

b. Company and battalion supply and operation of company motor vehicles.

c. Technical administration of the battalion; determine priorities, routing of work through shops, coordinate operations and material requirements, and maintain necessary records.

d. Maintenance of shops, facilities, and machinery; operate power plant and power distribution.

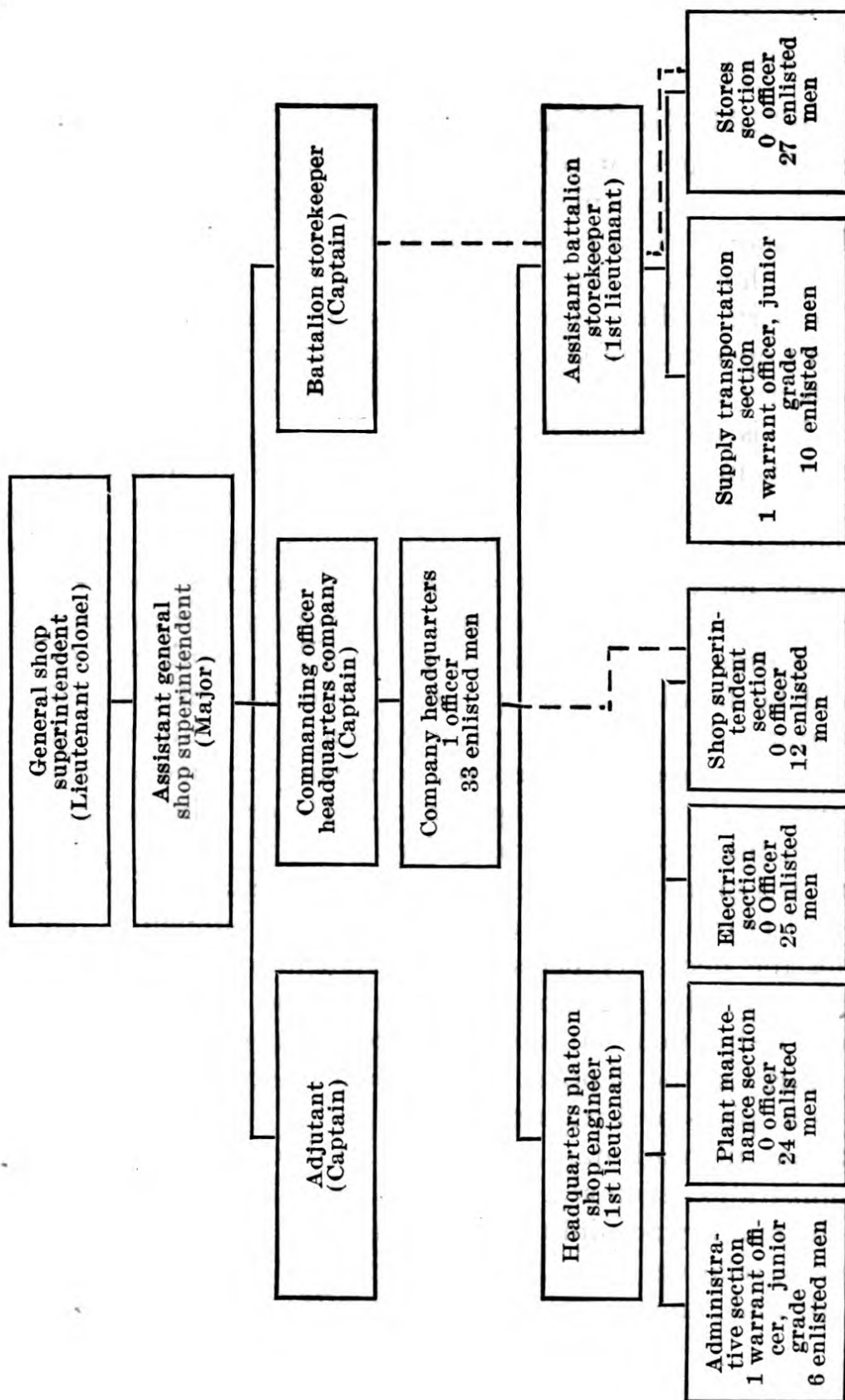


FIGURE 2. Organization of headquarters and headquarters company.

e. Reclamation or other disposal of all material turned in for salvage.

13. BATTALION HEADQUARTERS.

a. The lieutenant colonel commanding the battalion is general superintendent of the shops and facilities assigned to his battalion. He is responsible for the training, discipline, messing, housing, and morale of his troops. He makes such reports and keeps such records as may be necessary for efficient operation of shops, facilities, and personnel, and as may be required by higher authority. As shop superintendent, he is responsible for the technical operations of the battalion, management and coordination of all units, and efficient use of personnel and equipment. He determines methods for assembly and repair of railway equipment and arranges for procurement of necessary facilities and supplies. He adjusts arrangement of personnel and arranges for procurement of additional personnel if required. He should be familiar with operating conditions of the railway grand division or system to which his battalion is attached, and should be prepared to make recommendations for systematic repair of equipment. He exercises control through his company commanders.

b. Assistant general shop superintendent, major, is executive officer of the battalion and is second in command. He makes the necessary decisions supplementary to the basic decisions of the battalion commander who gives the necessary instructions to operating companies. He directs the work of the shop superintendent's section. He also serves as plans and training officer.

c. Battalion adjutant, captain, is in direct charge of the administration section of the battalion. He is responsible for the military administration of the battalion and handles matters relating to personnel, battalion orders, records, guard, mail, and messenger service. He advises the bat-

talion commander on all matters relating to military training and military employment of the battalion. He is assisted by a warrant officer (j. g.), personnel.

d. Battalion supply officer, captain, is in direct charge of food, clothing, ammunition, and equipment. As supply officer, he coordinates the technical supply requirements of the battalion, passes on requisitions submitted by companies of the battalion, supervises checking of incoming supplies, stores, and material for salvage, and makes issues. He also has charge of all salvage and reclamation. He is assisted by a warrant officer (j. g.), supply.

14. COMPANY HEADQUARTERS. This unit takes care of the administration and supply of the company.

a. Captain, headquarters company commander, is responsible to the battalion commander for the operation of his company and for accomplishment of work scheduled. He is responsible for administration of his company and for distribution of his personnel. He keeps such records and makes such reports as may be required by the battalion commander and as may be necessary for efficient operation of his unit.

b. Mess officer, first lieutenant, is in charge of battalion mess and records. He will report to the headquarters company commander and will be assisted by a technical and a staff sergeant, mess sergeants. Their duties will be receipt and preparation of rations for battalion mess. They will also be responsible for the cooks and helpers under their direction.

c. Staff sergeant, supply, is in charge of the receipt, care, and issue of company supplies (technical supplies, clothing, ammunition, individual and organizational equipment). He is assisted by a corporal, clerk. He will also take care of any administration and records of the first sergeant.

d. Private, bugler, is company messenger and drives a truck.

15. SHOP SUPERINTENDENT'S SECTION. This section is to take care of administration and drafting.

a. Master sergeant, chief clerk, supervises rendition of reports on shop operations and keeps records and data for technical operation of the battalion. He exercises technical supervision over all shop clerks.

b. Master sergeant, draftsman, mechanical, has full supervision over mechanical design and drafting for the battalion. He is assisted by T-4, T-5, and private draftsmen.

c. Staff sergeant, railway shop dispatcher, coordinates all technical operations of the battalion by means of a shop schedule and routing system. He prepares a master sheet containing dates of completion of the major items of repair work, so that there is a constant flow of finished materials to the erecting and repair shops in the order required for assembly. He prepares work and material estimates for the battalion. His section also prepares work orders, material requisitions, and charts in connection with work planning, and reports to the officer in charge of headquarters platoon, first lieutenant, railway shop maintenance engineer.

16. ADMINISTRATION SECTION. This unit takes care of routine battalion administration, pay rolls, morning reports, records, and mail. It reports to the battalion adjutant.

a. Master sergeant, sergeant major, is chief clerk for the adjutant and is in charge of the section.

b. Technical sergeant, personnel, is in charge of battalion personnel records and assists the sergeant major in his duties. He is assisted by clerks, general, and a stenographer.

17. PLANT MAINTENANCE SECTION. This section is in charge of two sergeants, a millwright, and a powerhouse engineer. They will report to first lieutenant, railway shop maintenance engineer.

a. Sergeant, millwright, will have direct charge of maintenance of all buildings and facilities and operation of all facilities of the battalion. He prepares rules and regulations for operation of machinery and for safety and fire prevention. He also arranges for shop fuel and lubricants.

b. Sergeant, powerhouse engineer, is in charge of all powerhouse operations and is responsible for the maintenance of powerhouse boilers, machinery, pumps, air compressors, and generators. He has charge of the fireman (stationary boilers).

18. ELECTRICAL SECTION. This section is also under the supervision of first lieutenant, railway shop maintenance. Duties will consist of repair and maintenance of all electrical equipment of the battalion.

a. Technical sergeant, electrician, is in charge of this section. His duties are to supervise all repairs to electric motors, electric locomotives, powerhouse panel boards, wiring, or any other electrical equipment assigned to the battalion.

b. Staff sergeant, Diesel mechanic, is in charge of repairs to all Diesel equipment, including locomotives, where there is no attached Diesel platoon.

19. SERVICE PLATOON. First lieutenant is in charge of this platoon, which consists of platoon headquarters, supply transportation section, and stores section. The platoon commander is assisted by—

a. Technical sergeant, chief storekeeper, who is in charge of technical supplies of the battalion and assists the platoon commander in his duties.

b. Supply transportation section; warrant officer (j. g.) assists battalion supply officer and has charge of the section. He will be assisted by—

- (1) Technical sergeant, supply, in charge of battalion supplies (except technical equipment). He provides personnel for operation of motor vehicles of headquarters and headquarters company. He is in charge of motor vehicles and personnel.
- (2) Sergeant, foreman, auto repair shop, has charge of repairs to all automotive equipment of the battalion.

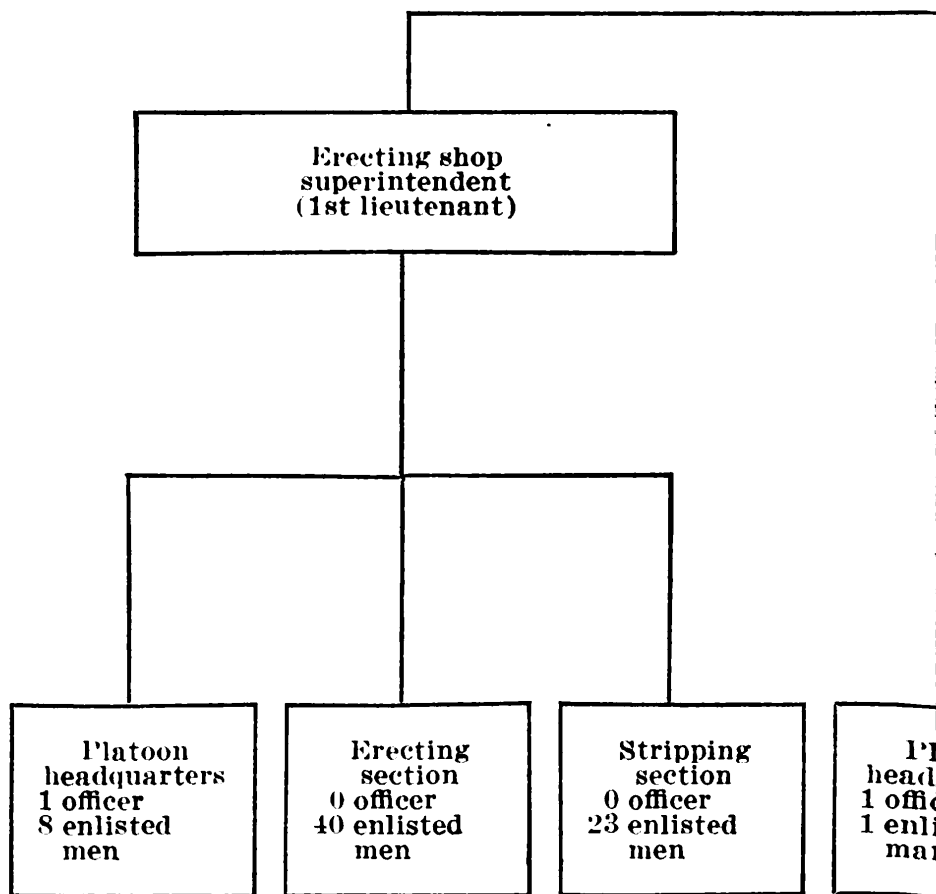
20. STORES SECTION. Technical sergeant, administrative, in charge of stores section, is assisted by clerks, general stock clerks, and crane operators. Their functions are to provide for procurement and stocking of raw materials, manufactured assemblies, finished and semifinished materials, tools, and equipment necessary for operation of the shop. They determine, demand, and arrange for procurement of finished and semifinished materials to be furnished operating battalions, and coordinate production of various materials which may be produced by reclamation.

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SECTION IV

ERECTING AND MACHINE SHOP COMPANY

21. ORGANIZATION (fig. 3). Erecting and machine shop company is composed of company headquarters, erecting shop platoon, and machine shop platoon. When authorized by the War Department, a Diesel electric platoon, adequate to maintain Diesel and/or electric motive power, may be added (T/O 55-237).

22. FUNCTION. Erecting and machine shop company strips railway locomotives assigned to the battalion for repair, performs machine operations and fitting on parts and subassemblies, cleans and repairs locomotive air-brake equipment, performs autogenous welding operations, and erects and places repaired locomotives in services. It maintains all portable tools and provides switching service for the battalion.

23. COMPANY HEADQUARTERS. This unit takes care of the administration and supply of the company.

a. Captain, company commander and shop superintendent, is responsible to the battalion commander for the operation of his company and for accomplishment of work scheduled. He is responsible for administration of his company, for distribution of his personnel, for maintenance of an adequate supply of materials, and for economical and

efficient use of materials and personnel. He keeps such records and makes such reports as may be required by the battalion commander or higher authority, and as may be necessary for efficient operation of his unit.

b. First lieutenant, assistant to railway shop superintendent, has direct charge of military administration and supply of the company, and procurement, storage, and issue of technical supplies.

c. Master sergeant, railway mechanic general, assists the first lieutenant in the performance of his technical railway duties and has supervision of machine shop, erecting shop, and Diesel electric platoon when attached.

d. First sergeant has immediate charge of all routine work of the company. He prepares or supervises the preparation of routine reports, keeps organization records, prepares and issues orders, and performs such other work as may be assigned to him. He is assisted by a technician, 5th grade, company clerk.

e. Staff sergeant, supply, is in charge of receipt, care, and issue of such company materials as deemed advisable to stock in erecting shop area, including clothing, ammunition, individual and organizational equipment. He is to be assisted by sergeant, clerk typist, who has two clerks, general, privates, to maintain his company stock.

f. Private, bugler, is company messenger and drives truck.

24. ERECTING SHOP PLATOON. This unit receives locomotives assigned to the battalion for repair, removes worn and damaged parts and sends them to the machine shop platoon or to the boiler and smith shop company for repair or to the reclamation section of the headquarters company for disposition. On receipt of repaired or new parts, locomotives are assembled and placed in service.

Considerable repair operations on boilers and tanks, fitting or forgings and pipe, removal and assembly of electrical appliances, and some machine and welding operations are performed in the erecting shop by personnel of the boiler and smith shop company and machine shop platoon; there must be coopération between this platoon and the other units for the efficient handling of the work. This platoon is composed of a headquarters, an erecting section, and a stripping section.

a. Headquarters. Platoon headquarters provides administrative force to coordinate work of the sections, and for inspection.

- (1) First lieutenant, platoon commander, is erecting shop superintendent. He has charge of stripping and assembly locomotives received for repair and of the inspection, test, and delivery of such repaired equipment. He coordinates the work of erecting and stripping sections, adjusts normal assignment of personnel as required, and is responsible for their cooperation with personnel from other units of the battalion.
- (2) Technical sergeant, railway mechanic, general, assistant and second in command, is general foreman in charge of the platoon. He also has charge of crane hoist operators and hostlers, operating locomotives under test, and turning over repaired locomotives to operating battalions. Crews for breaking in shop locomotives will be attached from operating battalions.

b. Erecting section. Staff sergeants, railway mechanics, general, are responsible for proper assembly and test of locomotives; they also see that proper materials and supplies are received. This section assembles and repairs locomotives from parts or subassemblies received from

stock, machine shop platoon, and boiler and smith shop company.

c. Stripping section. Sergeant, locomotive mechanic, is in charge. This section receives locomotives for repair, removes and cleans locomotive parts scheduled for repair or replacement, and distributes the worn parts to be repaired to each operation of the shop.

25. DIESEL ELECTRIC PLATOON.

a. First lieutenant, shop superintendent, is the platoon commander. He is responsible for the repair and maintenance of all Diesel and/or electric motive power in any theater. His platoon is a part of the erecting and machine shop company of a railway shop battalion. He reports to the commanding officer of Company A.

- (1) The platoon consists of one Diesel section and one electric locomotive section, each commanded by a second lieutenant. They report direct to the platoon commander and are responsible to him for the proper operation of their separate sections.
- (2) Technical sergeant, foreman, mechanical, assists the platoon commander in planning and supervising repairs to Diesel and electric power. He also has charge of administration.
- (3) Technician, grade three, draftsman, electric, has charge of all prints relating to parts on Diesel and electric power, also performs design and drafting for the platoon.

b. The Diesel section is under the jurisdiction of a second lieutenant, Diesel foreman, who is responsible for the repair and maintenance of all Diesel equipment. The Diesel section of this platoon is in charge of all Diesel repairs. The second lieutenant in command is assisted by—

- (1) Technical sergeant, assistant Diesel foremen, works with the Diesel foreman and has direct charge of all Diesel repairs.
- (2) Technicians, grade four, Diesel mechanics, make general repairs to Diesel engines and control equipment in cabs, other than electrical equipment, air compressors, and brake equipment.
- (3) Technicians, grade five, Diesel mechanics, make repairs to all trucks, remove and install traction motors, change wheels and bearings, repair draft gears, safety appliances, headlight equipment, and foundation brake gear.
- (4) Privates, Diesel mechanics, do all stripping, cleaning, salvaging of parts, and assist Diesel mechanics in their work.

c. Electric section is under the jurisdiction of a second lieutenant, electric foreman. He reports to the platoon commander and is responsible for the repair and maintenance of all electrical equipment and Diesel or electric power. The electric locomotive section of this platoon is in charge of all electrical equipment on both Diesel and electric power. The second lieutenant in command is assisted by—

- (1) Technical sergeants, assistant electric locomotive foreman, each works with an electric locomotive foreman and will have direct charge of all electric locomotive repairs.
- (2) Technicians, grade four, electric locomotive mechanics, make general repairs to all control equipment other than electric, air compressors, brake equipment, etc.
- (3) Technicians, grade five, electric locomotive mechanics, make repairs to all trucks, remove and install traction motors, change wheels and bearings, repair

draft gears, safety appliances, headlight equipment and foundation brake gear.

- (4) Privates, electric locomotive mechanics, do all stripping, cleaning, salvaging of parts, and assist electric locomotive mechanics in their work.

d. The Diesel electric repair section is a common section designed to fit in with either the electric locomotive section or the Diesel section, or with both, depending upon the nature of the work to which it is assigned. The repairs performed by it will be under the supervision of the officer or officers of the electric locomotive section and/or the Diesel section, as the case may be.

- (1) Technical sergeants, mechanic foremen, and locomotive armature winders, will have direct charge of all armature winding, stripping of parts, making repairs to armatures, locating shorts, rewinding, baking and testing. Technical sergeants will be in charge of armature winders in the grades of T/3, T/4, and T/5.
- (2) Technical sergeant, foreman mechanic electric, will have direct charge of all repairs to electrical control equipment on both Diesel and electric locomotives, repairs to panel boards, operating electrical equipment, motors, electric switches, cut-outs, etc., and will have direct control of men in the grades of T/3, T/4, and T/5, electricians (control equipment), T/3, T/4, and T/5, and electricians (electricians, traction). Included in this group will be electrician helpers. Their duties will be to assist the mechanics in their duties.
- (3) Staff sergeants, foremen mechanics (machinists), have charge of all Diesel and electric locomotive inspection, make reports as to nature of repairs needed, and keep records of repairs made. They also have

direct charge of all repairs to Diesel and electric locomotives except electrical equipment. Also in this section there is a machine shop section to do all the necessary machining of parts for both classes of locomotives. Staff sergeants, foremen mechanics, will have direct control of T/5, locomotive inspector, T/4 and T/5, machinist general, privates, machinist general, T/4 and T/5, machinist railway, and privates, machinist railway.

26. MACHINE SHOP PLATOON. Technical sergeant, shop engineer railway, is second in command and assists superintendent in administration of the platoon.

a. Machine shop section. Staff sergeants, in charge, perform all machine operations on manufactured parts, dismantle, repair, and assemble locomotive subassemblies, except air-brake equipment. They machine all parts for repairs to locomotives or other equipment and are responsible for quality of work produced and for its completion and delivery according to schedule.

b. Tool room section. Staff sergeant, tool designer, is in charge of this section, assisted by technician tool makers. Their duties are to design and fabricate tools and dies for the battalion.

c. Air brake section. Second lieutenant, air-brake superintendent, is in charge of this section and is responsible for the repair and maintenance of all air-brake equipment for the battalion. He will be assisted by staff sergeant, brake inspector, railway, whose duties are to supervise the repair and testing of air-brake equipment in cars and locomotives.

SECTION V

BOILER AND SMITH SHOP COMPANY

27. ORGANIZATION (fig. 4). Boiler and smith shop company is composed of company headquarters, boiler shop platoon, smith shop platoon, and pipe and tin shop platoon (T/O 55-238).

28. FUNCTION. Boiler and smith shop company performs repair and manufacturing operations on locomotive boilers and tanks, all plate, sheet metal, and structural work, forgings, springs and electrical apparatus, and pipe-fittings on locomotives. It performs all babbiting and brazing, forging of tools, heat-treating, and produces brass castings for the battalion.

29. COMPANY HEADQUARTERS. This unit takes care of administration and supply of the company.

a. Staff sergeant, supply, is in charge of receipt, care, and issue of such company technical supplies as it is deemed advisable to stock in boiler and smith shop area. He is also responsible for cooperating with the battalion supply sergeant, keeping him advised of the company's need for any technical material.

b. Sergeant, clerk, typist, storekeeper, will report and assist company supply sergeant.

c. Private, bugler, is company messenger and drives truck.

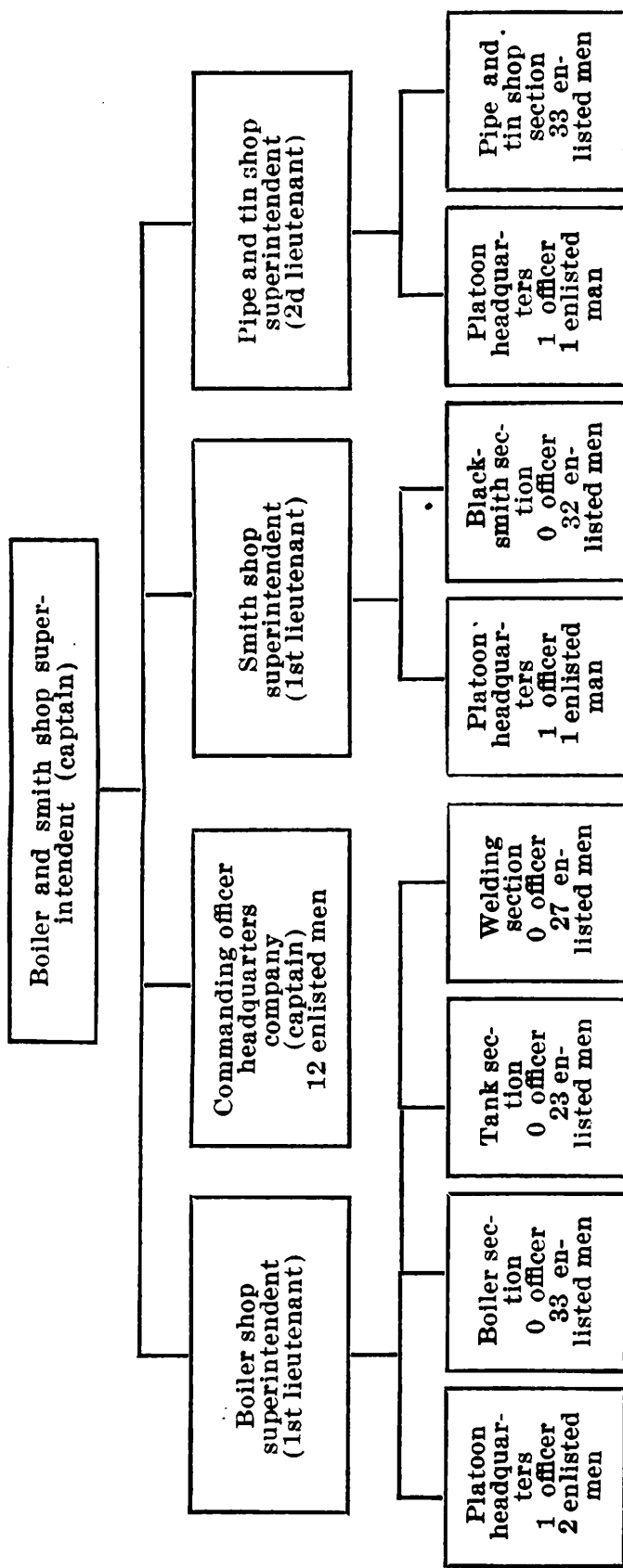


FIGURE 4. Boiler and smith shop company.

30. BOILER SHOP PLATOON. This unit performs all repair and manufacturing operations on boilers, tanks, and steel structural work. Operations such as cleaning and scaling, application of patches, crack-welding, removal and replacement of boiler tubes, normally are performed in the erecting shop by personnel from this platoon. Repairs to portable boilers, such as those on maintenance-of-way cranes, wreckers, etc., normally are performed in the work equipment platoon of the erecting and machine shop company by personnel provided from this platoon. It is composed of headquarters, boiler section, tank section, and welding section.

a. Headquarters. Platoon headquarters provides the administrative force to coordinate work of sections, and for inspection.

- (1) First lieutenant, platoon commander, is shop superintendent. He supervises work of sections and sees that work is completed and delivered according to schedule. He adjusts normal assignment of personnel as required, and coordinates operation of platoon in the erecting shop with other erecting shop operations.
- (2) Technical sergeant, shop engineer, railway, is assistant shop superintendent and second in command. He assists the superintendent in administration of platoon.
- (3) Technician, grade four, boiler inspector, inspects boilers and tanks on equipment received for repair, and checks conditions with inspection reports and work orders. He inspects and passes on all boiler and tank material and repair operations, and inspects and tests boilers and tanks after completion. He submits his reports to the staff sergeant inspector in headquarters company, and reports defective work to his platoon commander.

b. Boiler section. This section performs all manufacturing and repair operations on locomotive and work equipment boilers.

- (1) Staff sergeant, foreman, machine shop, is in charge of the section. He arranges his operations in accordance with schedules and work orders prepared by shop dispatcher, and is responsible for distribution of work and proper performance of operations of section.
- (2) Technicians, grades three and four, foremen mechanics, are in charge of work designated to them by shop engineer. They will also have charge of working squads.

c. Tank section. This section performs all manufacturing and repair operations on tanks and structural steel work, and provides labor force for the platoon.

- (1) Staff sergeant, foreman, machine shop, is in charge of this section.
- (2) Sergeant, foreman, machine shop, will assist staff sergeant and have direct charge of all work in the tank section.

d. Welding section. This unit performs forging, heat-treating, pipe-fitting, sheet-metal work, brazing, babbiting, and electrical repair work, and produces brass castings for the battalion. Operations, such as fitting braces and pipe and removal and assembly of electrical apparatus and boiler jackets, normally are performed in the erecting shop by personnel of this platoon.

- (1) Master sergeant, welder, combination, will have charge of the combined welding and cutting work of the battalion. He will be responsible for the equipment and segregating work, so as not to retard any program in any other department. He will be assisted by staff sergeant ((2) below).

- (2) Staff sergeant, welder, combination, will have direct charge of the welding and cutting personnel for the battalion. He will also be responsible as to grade of work and production.

31. SMITH SHOP PLATOON.

a. Technical sergeant, shop engineer, railway, arranges operations in accordance with schedules and work orders prepared by shop dispatcher, and is responsible for distribution of work and proper performance of operations of section.

b. Staff sergeant, foreman, machine shop, has charge of all forging, including tool forging and dressing, heat-treating and spring-making for the battalion.

c. Sergeant, hammersmith, is in charge of all heavy blacksmith production and work.

32. PIPE AND TIN SHOP PLATOON. This section performs all pipe-fitting on locomotives, sheet metal work, coppersmithing, brazing, babbiting, and brass molding for the battalion, and provides labor force for platoon.

a. Second lieutenant, platoon commander, is in charge of this section. He supervises work of sections and sees that work is completed and delivered according to schedule. He adjusts normal assignment of personnel as required. He is assisted by technical sergeant, sheet metal worker, and sergeants (**b** and **c** below).

b. Sergeant, foreman, foundry, has charge of brass molding and babbiting, coppersmithing, and bronzing.

c. Sergeant, foreman, machine shop, has charge of all machine operations, pipe fitters, sheet metal workers.

SECTION VI

CAR REPAIR COMPANY

33. ORGANIZATION (fig. 5). Car repair company is composed of company headquarters, freight car platoon, and passenger car platoon. (See T/O 55-239.)

34. FUNCTION. Car repair company performs heavy repairs to existing or standard military railway cars, passenger equipment, and miscellaneous work within its capacity. Repair of miscellaneous equipment involves some operations outside capacity of company equipment and personnel, which are performed by other units of the battalion.

35. COMPANY HEADQUARTERS. This unit takes care of administration and supply of the company.

a. Captain, see paragraph 23a.

b. First sergeant, see paragraph 23d.

c. Staff sergeant, supply, is in charge of receipt, care, and issue of company technical supplies, except as deemed advisable to stock in car repair shop area. He is also charged with the responsibility of cooperating with the battalion supply sergeant, keeping him advised of the company's need for technical materials of all kinds, also where and when these materials should be delivered.

36. FREIGHT CAR PLATOON. This unit receives standard freight cars assigned to the battalion for repair, removes and dismantles component parts, distributes them as required for repair or disposal, and reassembles the cars.

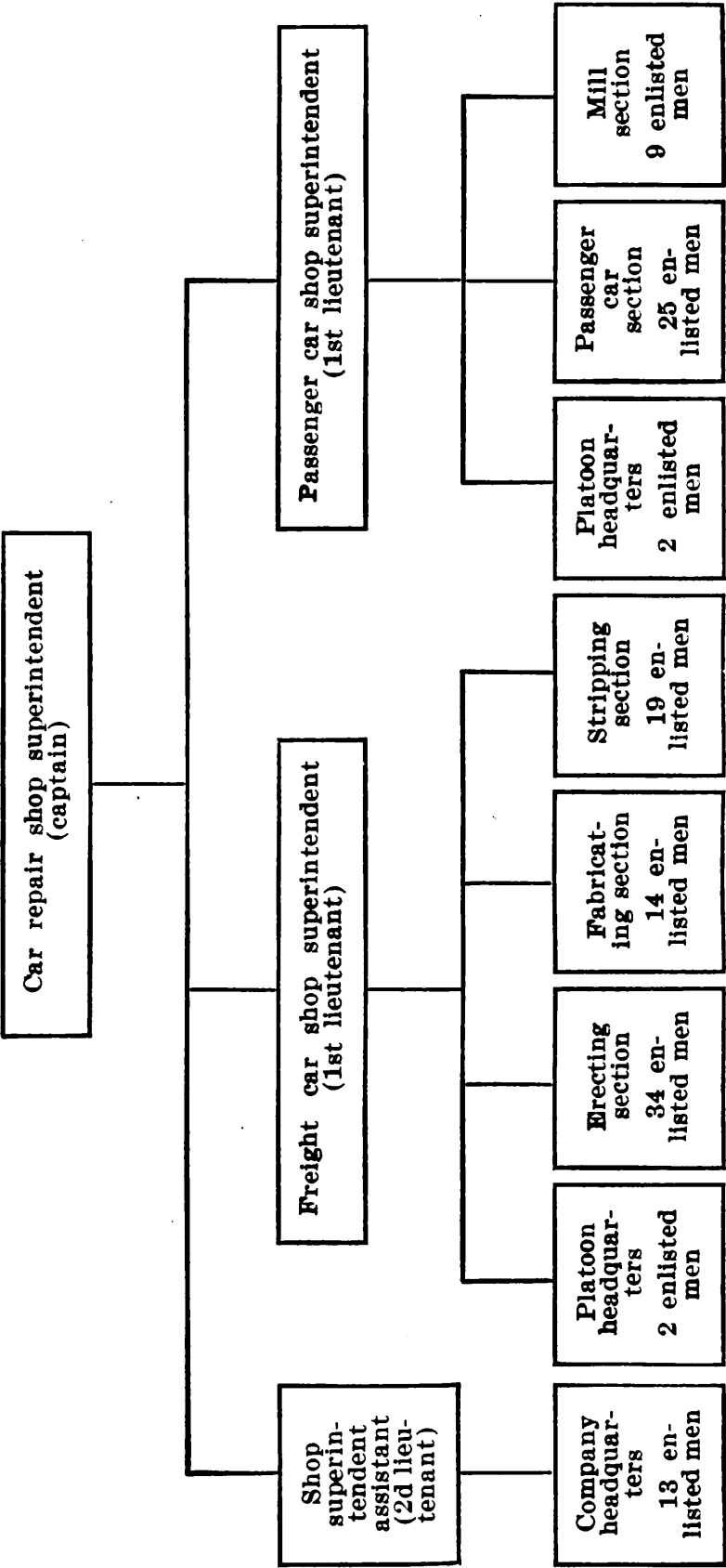


FIGURE 5. Organization, company C (car repair company).

Operations normally include stripping, repairing frames, applying steel framing, fitting, bolting, reaming and riveting, applying floors and wood siding and ends, applying roofs, runboards, doors, etc., applying trucks, brakes, and safety appliances. Trucks, after removal, should be routed on a separate stripping and assembly line. Wood floors are normally replaced; boxcar sides, ends, and roof may require whole or partial replacement; wheels and axles are removed and sent to the wheel section of the passenger car platoon; brake beams and rigging are dismantled and remanufactured; brake operating equipment is removed and rehabilitated by air brake section. Freight car stripping and assembly should be treated as a manufacturing operation and stripping and assembly lines established, the cars being turned over for painting and delivery at end of line. Painting is performed by personnel of passenger car platoon. Stripping may be accomplished outside, but provision should be made for inside stripping in inclement weather. This platoon is composed of headquarters, erecting section, fabricating section, and stripping section.

a. Headquarters. Platoon headquarters provides administrative force to coordinate work of sections and for inspection.

- (1) First lieutenant, platoon commander, is car shop superintendent. He has charge of stripping and assembling of freight cars received for repair; cleaning, repair, and test of car air-brake operating equipment; and inspection of cars. He coordinates work of erecting, fabricating, and stripping sections and adjusts normal assignment of personnel as required.
- (2) Technical sergeant, shop engineer railway, assistant car shop superintendent and second in command, is general foreman in charge of work of the platoon.

- (3) Technician, grade four, car mechanic, railway, will report to shop engineer, railway, as a car inspector and, upon completion of his inspections, will advise as to nature of repairs.

b. Erecting section. This section operates a freight car assembly line and assembles cars from parts or subassemblies received from stock or from other units of the battalion.

- (1) Staff sergeant, shop engineer, railway, is car shop foreman in charge of this section. He is responsible for the proper assembly of cars. He sees that the proper materials and parts are received, arranges operations, and distributes personnel for maximum production in accordance with schedules and work orders prepared by shop dispatcher. He is assisted by two sergeants and technicians ((2) and (3) below).
- (2) Technicians, grade four, car mechanics, railway, will be in charge of working squads.
- (3) Technicians, grade five, car mechanics, railway, will be relief foremen.

c. Fabricating section. This section normally is employed in production of subassemblies from parts received from stock or from other units of the battalion. It has the same personnel as the erecting section.

- (1) Staff sergeant, shop engineer, railway, is in charge of the section. He receives cars for repair and is responsible for their dismantling and the delivery of parts to other units, in accordance with schedules and work orders prepared by shop dispatcher. He is assisted by technicians ((2), (3), and (4) below).
- (2) Technicians, grade four, car mechanics, railway, will be in charge of all stripping and will assist shop engineer, railway in his duties.

- (3) Technicians, grade five, car mechanics, railway, will be in charge of working squads.
- (4) Technicians, grade five, car carpenters, railway, will be relief foremen.

37. PASSENGER CAR PLATOON. This unit repairs passenger cars. It performs all miscellaneous work, operates car wheel and axle shop, and performs all necessary dismantling, repair, and assembly operations on such work within its capacity, including body and truck repair of cranes, rail cars, etc. It performs all painting on cars and miscellaneous equipment. While separate paint shops for freight and passenger cars normally are used commercially, this is not necessary in military operations as the same grade of work will be used on all types of equipment. Old paint is sandblasted from steel and scraped from wood outside the paint shop, and the cars immediately are moved to the shop for first coat. Paint normally is sprayed on exteriors and lettering is applied with stencils. Storage space for paint should be provided in a separate building. The platoon is composed of headquarters, passenger car section, and mill section.

a. Headquarters. Platoon headquarters provides the administrative force to coordinate work of sections.

- (1) First lieutenant, platoon commander, is shop superintendent. He has charge of the repair of passenger cars, car wheel and axle work, and miscellaneous work assigned to the platoon. He arranges with other units of the battalion for performance of operations beyond the capacity of the platoon. He coordinates operations of sections and adjusts normal assignment of personnel as required.
- (2) Technical sergeant, shop engineer, railway, is assistant shop superintendent and second in command. He assists superintendent in administration of platoon.

b. Passenger car section. This section repairs standard railway passenger cars and similar equipment, performs all painting on cars and miscellaneous equipment, pattern-making, woodworking, upholstery, and canvas work.

- (1) Staff sergeant, shop engineer, railway, is in charge of the section. He sees that proper materials and parts are received, and arranges his operations in accordance with schedules and work orders prepared by shop dispatchers. He will also have charge of T/5 general painters for the battalion. Their duties will be painting freight, passenger cars, and locomotives.
- (2) Technicians, grade four, car mechanic, railway, will be in charge of working squads.
- (3) Sergeant, shop engineer, railway, will be in charge of the wheel section for freight and passenger car platoons. This section performs machine operations on wheels and axles (other than locomotive driving wheels and axles). It has necessary personnel and is equipped to perform these operations on all such equipment for a shop and operating battalion.

c. Mill section. The duties of the mill section are to repair and refit woodwork on passenger equipment. Machine woodworkers produce lumber for car decking, sheathing, etc. Pattern maker produces patterns for castings and other woodwork as required. Cabinetmakers, carpenters, woodworking machine operators will be included in this section.

- (1) Staff sergeant, cabinetmaker, will be in charge of this section and will be assisted by technicians ((2), (3), and (4) below).
- (2) Technicians, grade four, cabinet makers.
- (3) Technicians, grade five, car carpenters, railway.
- (4) Technician, grade three, pattern maker.

SECTION VII

RAILWAY WORKSHOP, T. C. (MOBILE)

38. ORGANIZATION. The railway workshop, T. C. (mobile), is a separate mechanical unit composed of one officer and twenty-seven enlisted men, equipped with movable back shop repair and erecting machinery permanently mounted in railway cars, for use at points in the theater of operations distant from a railway shop battalion. (For details of organization see T/O 55-500.)

39. FUNCTION. The mobile railway workshop is designed for employment at base ports in the erection of locomotives and cars as they are unloaded from transports. It is especially designed to operate in forward areas of the combat zone where stationary railway shop facilities are not available. There the workshop may be set up on a permanent or temporary rail siding, for repairing our own rolling stock and for the rehabilitation of captured railway equipment to an extent sufficient to permit its removal, if necessary, to a railway back shop.

40. MILITARY EMPLOYMENT. The railway workshop, T. C. (mobile), like the railway shop battalion, is under the direct control of the general manager, MRS, or in his absence, under the senior MRS officer of the theater. Ordinarily he will attach the workshop to a railway grand division for tactical employment and administration. There should be one workshop with each grand division in the theater.

41. PERSONNEL.

a. The commanding officer, a first lieutenant (master mechanic), is general foreman. He is in full command of and responsible for the training, supervision, housing, messing, and discipline of the unit. He reports initially to the general manager or senior MRS officer of the theater, and when so assigned, to the general superintendent in command of the railway grand division to which the unit may be attached for administrative and operational purposes. He is responsible for all equipment, rolling stock, and supplies under his jurisdiction, and for the allocation of repairs.

b. A technical sergeant, shop engineer, is foreman, and is in charge of all repairs to locomotives and cars, or other railway equipment, which will be designated by the commanding officer.

c. A staff sergeant, shop engineer, is assistant foreman. He is responsible for all equipment of the mobile workshop, for servicing the train, and the operation of the machine shop.

d. For independent messing facilities, there shall be attached to the railway workshop (mobile) one mess team, type No. 1, consisting of two cooks and one cook's helper (T/O 55-500).

42. EQUIPMENT. The workshop is mounted in a train of theater of operations type railway boxcars. The train normally consists of seven 40-ton cars or eight 20-ton cars. In the latter case, there are two machine shop cars (connected); one work car for boiler makers, blacksmiths, pipe fitters, and the air-brake mechanic; one power and tool car; one stores car; one store material (rough castings) car; one oil and waste car; and one car department tool car. Where 40-ton box cars are used, only one is necessary for the machine shop.

SECTION VIII

DRILL AND CEREMONIES

43. GENERAL.

a. Units of the railway shop battalion are organized for work and not for drill and combat. The company as a unit does not in general engage in prescribed drills. Such drill as is conducted is normally executed by the platoon, which practices close-order drill to the extent necessary to prepare for participation in ceremonies and marches.

b. Organization of companies of the battalion, as given in Tables of Organization, shows personnel as grouped while engaged in shop work. This organization is suitable for drill or ceremonies. To take care of military training, drill and assembly formations for companies are herein prescribed.

c. Companies are assembled and inspected in these formations.

d. Noncommissioned officers are assigned to duty as platoon leaders, platoon sergeants, platoon guides, squad leaders, or second in command of squad.

e. Fundamentals of drill, ceremonies, and inspections prescribed in FM 22-5 for the infantry rifle company and infantry battalion are applicable to units of the railway shop battalion, with such changes as are specified herein or are required due to difference of organization or arm.

44. BATTALION STAFF.

a. The battalion commander's staff for ceremonies consists of second in command, adjutant, and battalion surgeon.

b. Enlisted personnel of the battalion commander's staff consists of the sergeant major and one private from headquarters and service company.

c. Arrangement of members of the battalion staff is in accordance with the provisions of FM 22-5.

45. COLOR GUARD AND GUIDON.

a. Color guard.

- (1) Regulations covering color guard are contained in FM 22-5.
- (2) Erecting and machine shop company of the battalion is the color company.
- (3) The color is received by the color company as described in FM 22-5.

b. Guidon. The guidon is carried according to regulations prescribed in FM 22-5. The company clerk normally carries the guidon.

46. DRILL ORGANIZATION.

a. Platoon.

- (1) The drill platoon is composed of a platoon headquarters and two or more squads.
- (2) The platoon command group comprises the platoon commander, platoon sergeant (second in command), and three runners. For the purpose of drill or ceremonies, the runners may be used to fill out squads.
- (3) The platoon commander may be an officer or non-commissioned officer.

b. Company. The company is composed of company headquarters and two or more platoons. The company command group consists of the company commander, one other officer (if available), first sergeant, and guidon bearer. For purposes of drill or ceremonies, personnel of company

headquarters may be attached to platoons to fill out squads, or to form an extra squad.

c. Battalion. The battalion is composed of three companies and headquarters and service company. Units of the battalion are arranged in the following order from front to rear or from right to left: headquarters and service company, erecting and machine shop company, boiler and smith shop company, car repair shop company, and medical detachment.

47. CLOSE-ORDER DRILL.

a. Soldier. All personnel of the battalion receive the individual instruction of a soldier dismounted without arms and that of a soldier dismounted with rifle, as given in FM 22-5.

b. Squad. Squad drill is carried out as laid down for the infantry rifle squad in FM 22-5.

c. Drill platoon. The platoon is drilled as an infantry rifle platoon (see FM 22-5), and is the largest unit engaged regularly in drill. Formations of the platoon are similar to those of the infantry rifle platoon and include line and column of two's, three's, or four's.

d. Company. The company drills as an infantry rifle company. The purpose of close-order drill of the company is to permit it to participate in ceremonies (see FM 22-5). Formations include line, column of platoons, and mass.

e. Battalion. The battalion does not engage in close-order drill.

48. FORMATIONS.

a. General. Formations employed are:

- (1) Drill and assembly, used for reveille, retreat, roll call, inspection, and drill. It is used habitually on company parade and normally precedes formation for drill or ceremonies.
- (2) Route march, used on the road.

- (3) Inspection, used for careful check of personnel, for detailed inspection of personnel, equipment, and motor transport.

b. Drill and assembly. Elements of the company are arranged from right to left. The various elements form under their leaders. Company headquarters is always on the left. To form the company, see FM 22-5.

c. Route march.

- (1) For route march, the companies take up the march formation shown in FM 22-5. Drivers for the company trucks, mess sergeant, supply sergeant, and cooks and helpers join the company or battalion vehicles. When the company acts alone, it calls upon the headquarters and service company for additional trucks and drivers. When the entire battalion takes up the march, the company trucks and mess sergeant, supply sergeant, and cooks and helpers join the headquarters and service company. The transport section of the headquarters and service company, increased by company trucks, is placed under command of an officer designated by the company commander. Individuals of companies designated above, with such additional personnel as may be designated by proper authority, are assigned to vehicles by the transport section commander.
- (2) The march is governed by the regulations applicable to the infantry rifle company and the infantry battalion, with such modifications as are necessary due to difference in organization.
- (3) Order of march of the battalion is prescribed by the battalion commander.

49. INSPECTION.

a. Types. The two types of inspection are:

- (1) Military, made for the purpose of determining condition of personnel, individual equipment, quarters and arms of the organization, and carried on in accordance with FM 22-5.
- (2) Technical, made for the purpose of improving efficiency of the unit and the individual in shop work and to insure safe operation. It includes inspection of facilities, of technical qualifications of individuals, of work, and of equipment and material other than individual.

b. When made.

- (1) When personnel are not engaged in shop work, inspections normally are held in the company area. The company is usually formed for inspection in work groups under group commanders.
- (2) When personnel are engaged in shop work, military inspection is not made at a time or in a way which interferes with its operations. When made, the formation is prescribed by the local commander, following the general principle that personnel are placed under work leaders and that groups engaged in different types of work are separated.
- (3) Technical inspections are made continuously by unit commanders to maintain efficiency of their organizations in work. Methods of making technical inspection are prescribed by the battalion commander in such a way as not to interfere with essential work.

50. CEREMONIES.

a. Rules governing participation of the battalion in ceremonies are prescribed in FM 22-5.

b. Relative positions of the several units of the battalion are prescribed in FM 22-5.

c. Organizations habitually pass in review in company mass formation or columns of three's or four's.

51. EXTENDED ORDER. The battalion does not receive training in extended order.

SECTION IX

TRAINING

52. GENERAL.

a. The battalion must undertake disciplinary, physical, and technical training.

b. The purpose of disciplinary training is to develop the habit of obedience, to permit participation in ceremonies and inspections, to promote teamwork and morale within the organization, and to develop leadership.

c. The purpose of physical training is to develop the bodies of individuals so as to enable the organization to accomplish the arduous tasks which it is required to perform in the theater of operations without unduly depleting its strength by sickness. Physical training is included in training programs by unit commanders and includes games and calisthenics.

d. Technical training is all training undertaken for the purpose of qualifying individuals and units in performance of duties relating to shop operations. Efficient operation of a repair shop, of the size and under the conditions contemplated, requires a large quantity of technical data such as plans of equipment to be repaired, descriptions of shop machinery and equipment which will be available, and of typical shop lay-outs, studies of work operations, etc. Study of this material will form the major part of technical training of officers and most noncommissioned officers.

53. PRIVATE. The individual soldier must be trained—

- a.** In military courtesy and discipline, including basic training, guard duty, first aid, hygiene, etc.
- b.** To use weapon with which armed.
- c.** To perform duties to which assigned.
- d.** To execute movements in close order.

54. NONCOMMISSIONED OFFICER.

a. In addition to training prescribed for the private, the noncommissioned officer is trained in command.

b. Operations of the railway shop battalion comprise innumerable small operations by individual workmen, proper execution of which can be supervised only by leaders of small groups. In training noncommissioned officers, emphasis must be placed on the sense of responsibility for proper execution of work and the initiative and leadership to relieve officers of minor details of operation.

55. COMMISSIONED OFFICER. A unit commander must be trained—

a. In the relation between his unit and other units of the battalion.

b. In powers and limitations of the unit he commands.

c. In means and methods employed in execution of work.

d. To utilize existing subordinate units, under their leaders, for execution of work.

e. To supervise work, that is, to see that tasks are properly carried out, that correct methods are used, and that supply of materials is maintained.

f. To plan for improvement of activity over which he exercises control.

56. UNIT. A unit must be trained in railway shop work, and to execute rapidly and systematically work which may be assigned to it.

57. METHOD.

a. The method adopted should aim to create an organization capable of operating under varying conditions with maximum speed and efficiency. To attain this end, emphasis must be placed upon disciplinary and command training, that is, training groups under their leaders.

b. In order to create a smooth-running organization, individuals therein must be both soldiers and technical experts, and they must be trained to operate as a unit or group.

c. When the unit is not employed in technical work, training is concentrated on—

- (1) Military training, such as duties of the soldier, drill, ceremonies, inspections, and marksmanship.
- (2) Care and use of tools and equipment assigned to the unit.

d. When the unit is employed in shop work, training emphasis is placed upon development of specialists qualified to perform work and operate machines of the unit. This type of training is continuous and is carried on by the apprentice system used in commercial shops. This training should not interfere with technical operations of units.

e. In general, individual training should be conducted by noncommissioned officers. In order to train instructors and certain specialists, schools may be conducted within the battalion. Officers prepare training schedules, supervise their execution, and train instructors and certain specialists.

SECTION X

MEDICAL DETACHMENT

58. GENERAL.

a. The medical detachment must be able to furnish adequate medical aid whether the battalion is operating a railway repair shop or is in training. The detachment must take care of the usual sickness and shop accidents.

b. The battalion commander designates location of the battalion dispensary and first-aid stations upon recommendation of the battalion surgeon.

c. Medical detachment is composed of two officers and nine enlisted men, as prescribed in T/O & E 8-500.

59. DRILL AND CEREMONIES. The detachment is handled in accordance with the regulations prescribed in manuals for regimental medical detachments, with such modifications as may be necessary due to difference in strength, organization, and employment.



